

AVP 242...244: Pneumatic actuators

How energy efficiency is improved

Accurate activation of valves with minimal air consumption.

Areas of application

Actuation of through and three-way valves in continuous control equipment or open/closed control.

Features

- Silicone-free, can therefore be used in many areas
- Long-term-stable rubber membranes
- Reverse direction of travel by fitting other way round on mounting bracket
- Stroke indicator for rapid determination of position of drive setting
- Compressed-air connection with Rp 1/8" female thread
- Patented drive-valve coupling aids quick and easy connection of the drive with the valve
- Complies with directive 97/23 EEC on pressure equipment

Technical description

- Control pressure 0 - 1.2 bar
- Effective drive surface 180 to 500 cm²



T10443



T10445



Y07550

| Type | For valve with stroke mm | Air consumption for 100% stroke I _n | Control span ¹⁾ bar | Effective drive area cm ² | Weight kg |
|--------------------------------|--------------------------|--|--|--------------------------------------|-----------|
| AVP 242 F001 ²⁾ | 8 | 0.30 | 0.6 | 180 | 3 |
| AVP 242 F021 | 14-20-25 | 0.65 | 0.6 | 180 | 3 |
| AVP 243 F021 | 20 | 1.1 | 0.6 | 250 | 6 |
| AVP 243 F031 | 30-40 | 2.0 | 0.6 | 250 | 6 |
| AVP 244 F021 | 20 | 1.9 | 0.6 | 500 | 12 |
| AVP 244 F031 | 30-40 | 3.3 | 0.6 | 500 | 12 |
| Control pressure ³⁾ | 0...1.2 bar | | Dimension drawing AVP242 M 10428 AVP243/244 M 10429 | | |
| Max. pressure | 1.5 bar | | Fitting instructions Assembly AVP 242 F001 MV 506041 AVP 242 F021 MV 506012 AVP 243/244 MV 506013 | | |
| Permitted ambient temperature | -15...50 °C | | Material declaration AVP 242/243/244 MD 71.247 | | |
| Temperature on membrane | max. 70 °C | | | | |

Accessories

- XSP 31 Positioner ⁴⁾ (see data sheet, section 79), fitted at factory to the valve/drive combination
- XAP 1 Auxiliary contact unit ⁴⁾ (see data sheet, section 79), fitted at factory to the valve/drive combination
- XAP 2 Potentiometer unit ⁴⁾ (see data sheet, section 79), fitted at factory to the valve/drive combination
- XEP Electro-pneumatic transducer ⁴⁾ for continuous signals (see data sheet, section 69)
- [0274521 000*](#) Manual adjuster ⁵⁾ for AVP 243 and AVP 244, weight 1.7 kg, MV 505819
- [0274730 001*](#) Manual adjuster ⁵⁾ for AVP 242, weight 0.6 kg, MV 505819

^{*)} Dimension drawing for accessory available under same number

Assembly kit for valve type series VUD/BUD, VUE/BUE, VUG/BUG, VUS/BUS and VUP

| Drive type | XSP 31 | XAP | XEP |
|----------------------------------|------------|------------|------------|
| AVP 242 F001 | 297933 001 | 297934 001 | 297935 001 |
| AVP 242 / AVP 243 / AVP 244 F021 | 297933 001 | 297934 001 | 297935 001 |
| AVP 243 F031 AVP 244 F031 | 297933 001 | 297934 001 | 297935 001 |

¹⁾ Pressure-stroke characteristics: see valve data sheet, section 76

²⁾ Only for valve design version with O-ring stuffing box

³⁾ Required to achieve the actuating forces.

For regulations regarding the quality of the supply air, especially with a low ambient temperature, see section 60.

⁴⁾ In addition to the XSP 31 positioner, only one other accessory can be fitted (either the XAP position monitor/indicator or the XEP electro-pneumatic converter).

⁵⁾ Can be used for minimum or maximum limitation of the stroke. Handwheel can be removed.

Function

The control pressure acts via a disc membrane against a pre-tensioned pressure spring. When the force exerted by the control pressure on the membrane is greater than the spring pre-tension, the working shaft starts to move. The actuator is reversible and there are two alternatives for fitting it on the bracket:

Function A: 'extended without pressure' (as the control pressure increases, the shaft is retracted).

Function E: 'retracted without pressure' (as the control pressure increases, the shaft is extended).

Function 'E' is the ex works condition.

With valves in series VUD/BUD, VUE/BUE, VUG/BUG and BUS, (plug facing downwards) this gives:

Function A: (valve) 'open with no pressure' or 'normally open' (NO)

Function E: (valve) 'closed with no pressure' or 'normally closed' (NC)

With valves in series VUS and VUP (pushing plug), this gives:

Function A: (valve) 'closed with no pressure' or 'normally closed' (NC)

Function E: (valve) 'open with no pressure' or 'normally open' (NO)

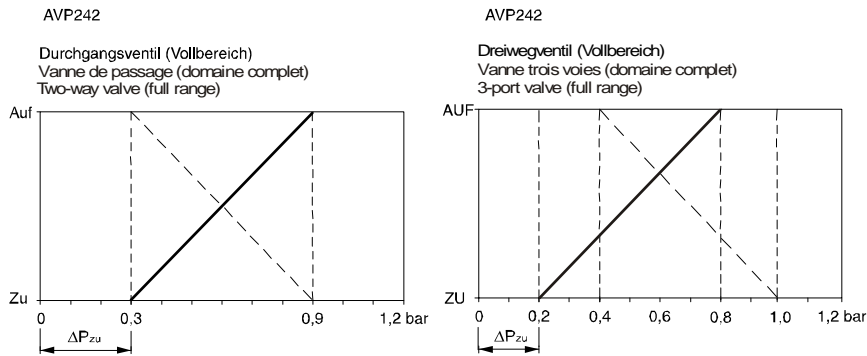
Engineering and fitting notes

The drive springs are preset for installation with the valve (stroke 20 or 40 mm). After assembly with the valve, the closing points for AVP 242 must be checked according to MV 506012, or for AVP 243/244 they must be checked according to MV 506013. On the AVP 243/244, if necessary, the spring tension can be corrected as appropriate using the central adjusting nut. In this case, however, you must take note of the resultant shift in the characteristic. Installation in any desired position except facing downwards, up to a valve medium temperature of 240°C. For medium temperatures in excess of 180°C, the horizontal position is advised. Adaptor **0372336 180** for temperatures above 130°C to 180°C, or **0372336 240** for temperatures above 180°C to 240°C, can also be used as an extension in order to bring the drive out of the pipe insulation.

Penetration of condensate and dripping water etc. along the shaft into the drive must be prevented. When installing the actuator, make sure that the valve plug is not rotated in the valve seat (stop guide) (this would damage the sealing surface).

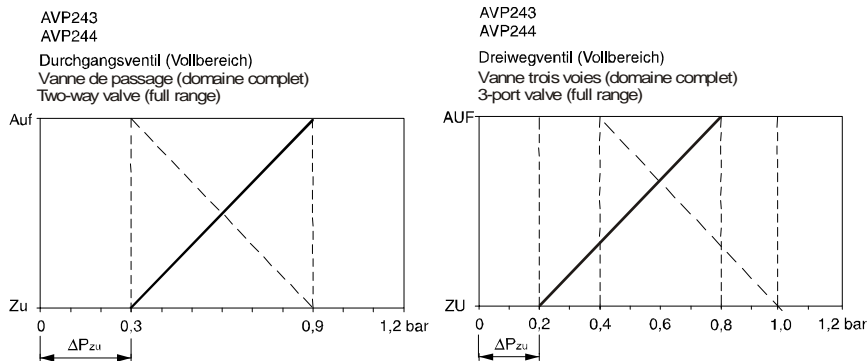
Pressure-stroke characteristic (with valve fitted)

Characteristic is not adjustable:



B10728

Characteristic is adjustable:



B10684

————— = CLOSED without pressure (function E)
 - - - - - = OPEN without pressure (function A)

Sequences with XSP31 are possible

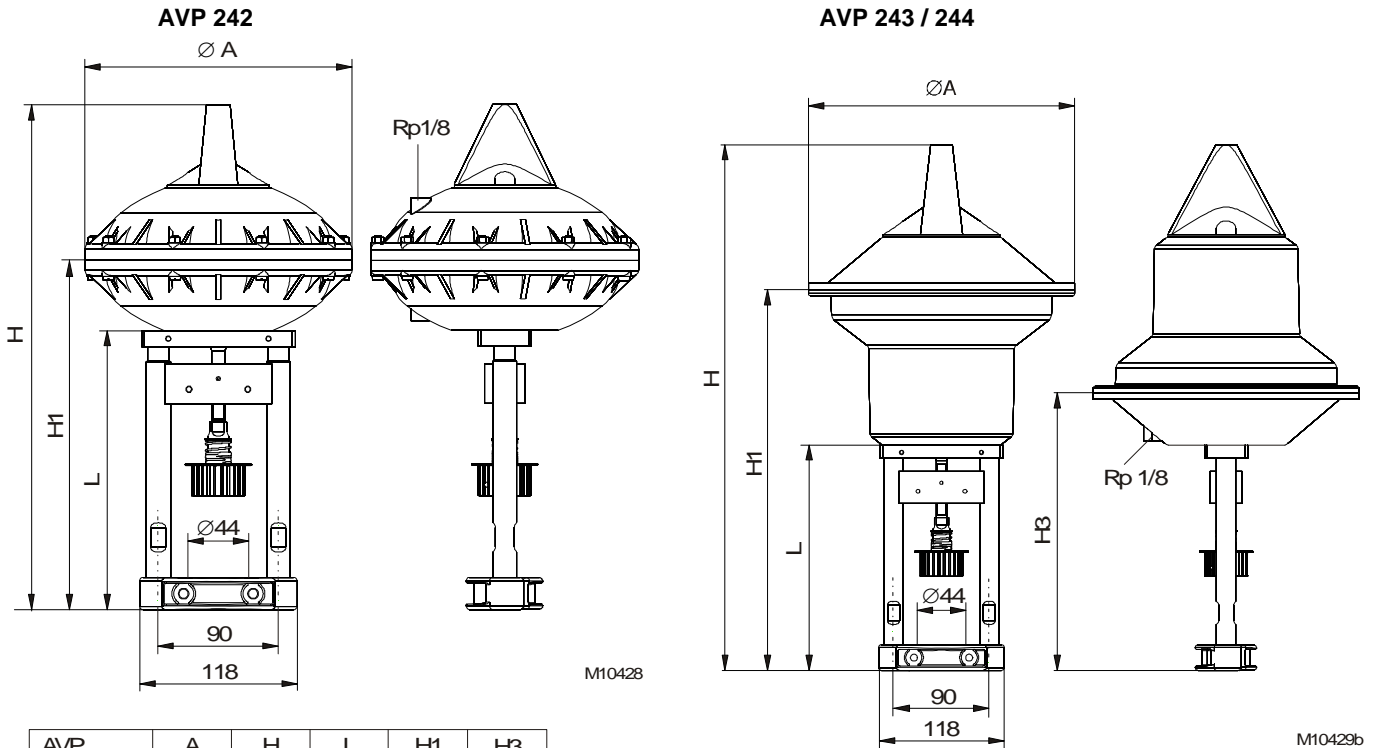
In the case of control valves, the characteristics relate to the upper seat (control passage)

The 'closing point' is the control pressure at which the valve just closes without pressure
(For three-way valves, upper seat = control passage is applicable).

The closing points are selected, taking account of the hysteresis, in such a way that:

- maximum closing force is attained with through valves
- with control valves, the closing force on the mixing passage is at least $\frac{2}{3}$ of the closing force on the control passage.

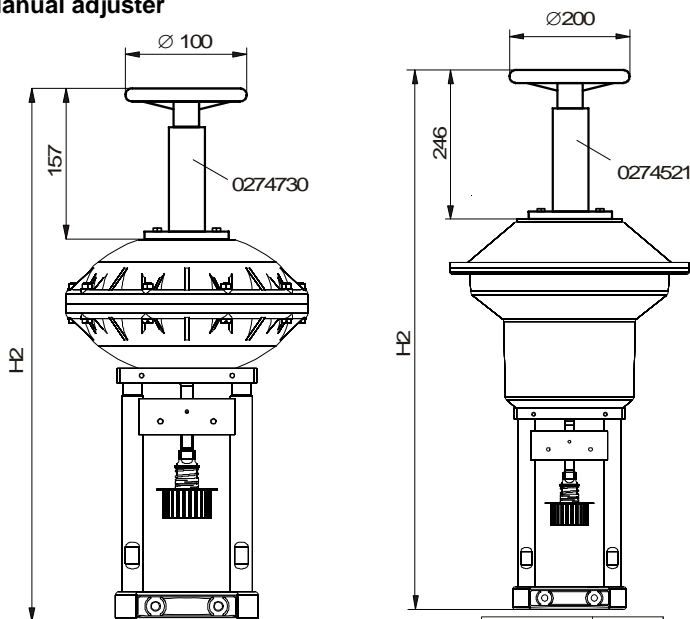
Dimension drawing



| AVP ... | A | H | L | H1 | H3 |
|----------|-----|-----|-----|-----|-----|
| 242 F001 | 200 | 377 | 209 | 262 | - |
| 242 F021 | 200 | 380 | 211 | 264 | - |
| 243 F021 | 250 | 497 | 211 | 357 | 260 |
| 243 F031 | 250 | 517 | 232 | 378 | 281 |
| 244 F021 | 335 | 536 | 211 | 357 | 260 |
| 244 F031 | 335 | 556 | 232 | 378 | 281 |

M10451c

Manual adjuster



| AVP ... | H2 |
|----------|-----|
| 242 F001 | 472 |
| 242 F021 | 474 |

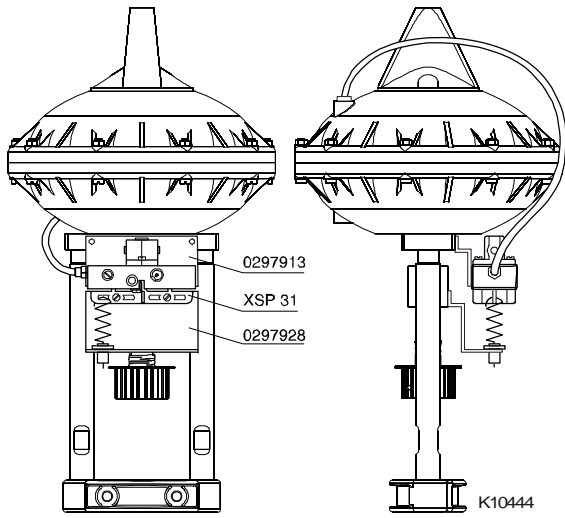
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| AVP ... | H2 |
|----------|-----|
| 243 F021 | 656 |
| 243 F031 | 676 |
| 244 F021 | 695 |
| 244 F031 | 715 |

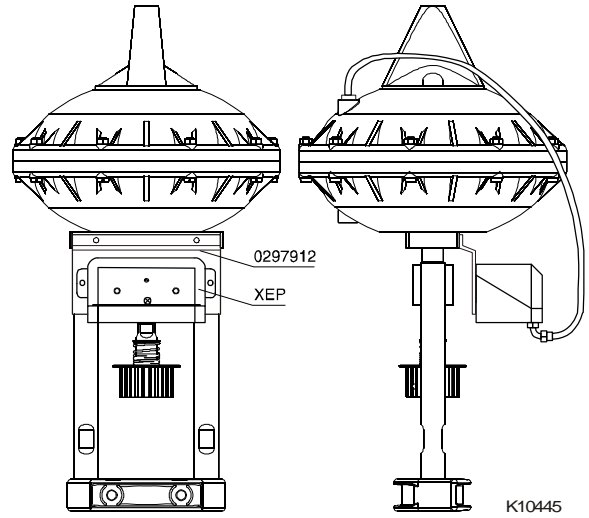
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Types of installation for additional devices

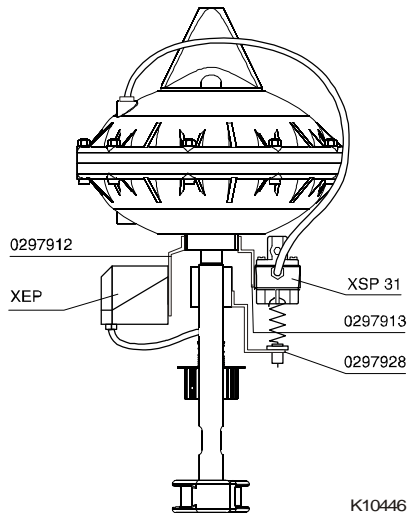
AVP 242, XSP 31



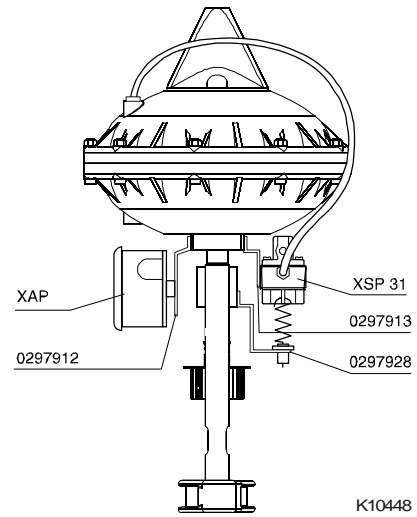
AVP 242, XEP



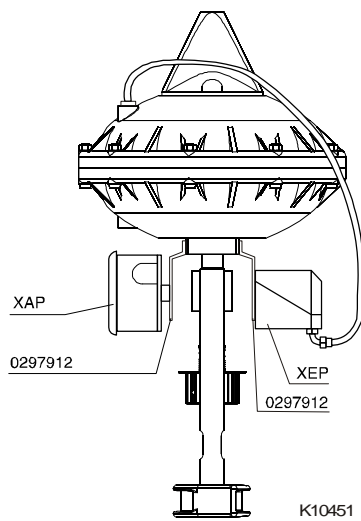
AVP 242, XEP, XSP 31



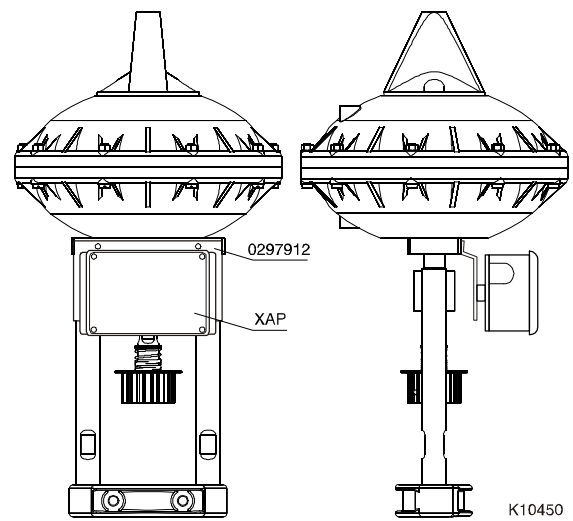
AVP 242, XAP, XSP 31



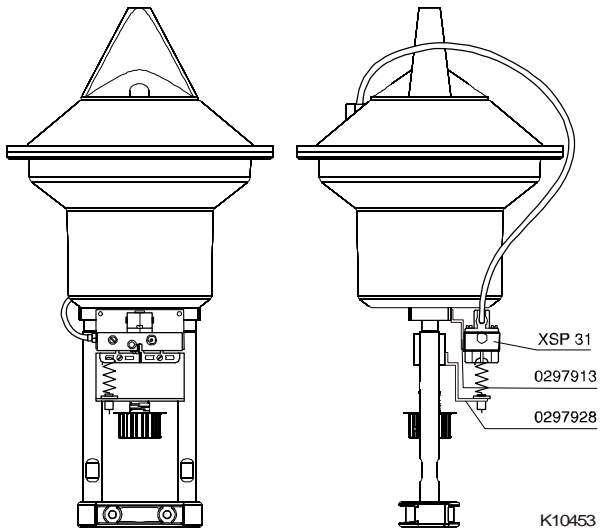
AVP 242, XAP, XEP



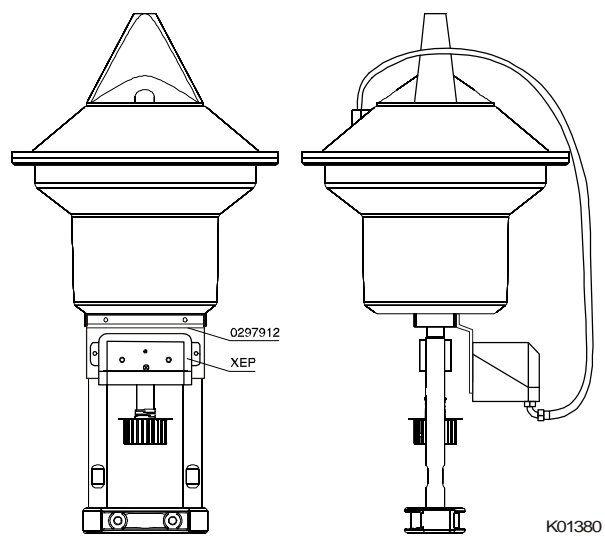
AVP 242, XAP



AVP 243 / 244, XSP 31



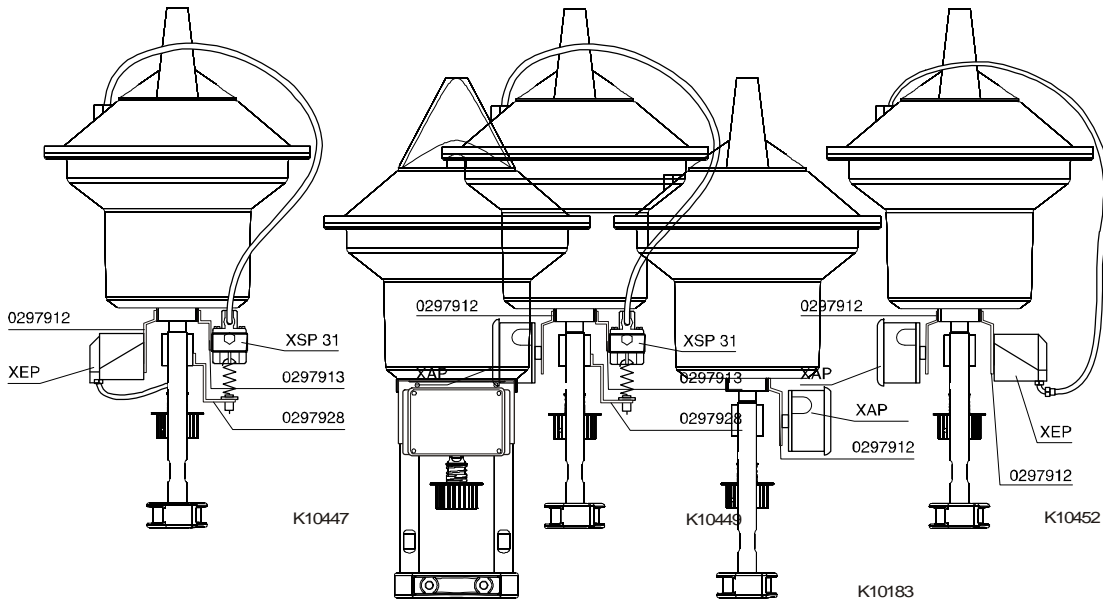
AVP 243 / 244, XEP



AVP 243 / 244, XEP, XSP 31

AVP243 / 244, XAP XSP31

AVP 243 / 244 XAP, XEP



AVP 243 / 244 XAP